REMARKS

The present response is intended to be a full and complete response to the Office Action mailed March 1, 2010. Claims 13 to 20, and 22 are pending in the present application.

Applicants note with appreciation that claim 22 would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claim. Claim 22 had been amended accordingly in the previous response.

Applicants respectfully request continued examination of Claims 13 to 20, and 22 and allowance of all pending claims.

Claim Rejections Under 35 U.S.C. § 103:

Claims 13 – 19, and 21 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Barchas et al. '481 in view of Kaellis '017. This rejection is respectfully traversed.

The Examiner notes that "Barchas does not explicitly disclose that the pressure drop is higher through the last set of coolers than the first. However, cooler optimization tends to involve employing the highest pressure drop one can tolerate as this permits higher heat transfer coefficients ..."

Applicants agree that Barchas et al. '481 fails to disclose that the pressure drop is higher through the last set of coolers than the first. Applicants also submit that Kaellis '017 fails to remedy this deficiency.

The Examiner notes that "Kaellis teaches that a common goal in the design of heat exchanger "is to enhance heat transfer while trying to keep the associated pressure drop low, or in other words to maximize the ratio of the heat transfer

coefficient to the pressure drop. The higher the pressure drop, the more energy must be expended to pump the fluids through the heat exchanger."

Applicants agree that Kaellis '017 discloses this, but submits that this is nothing more than a restatement of what Applicants argued in the previous response, wherein we state:

> "The skilled artisan would also recognize that as a practical consideration, the designer of this system would not go to the cost and expense of such an elaborate, multi-stage compressor with a complex inter-stage cooling system, in order to elevate the working pressure of the fluid to 450 – 650 psig, then squander this expensive and hard earned pressure by needlessly dispersing 50 psig (or more) thought the somewhat pedestrian heat exchanger, which (being external to the compressor) may be as large and have as slight a pressure drop as necessary."

One skilled in the art of heat exchanger design and thus determining pressure drop within a heat exchanger will be familiar with basic pressure drop calculations such as Darcy-Weisbach, Bernoulli, etc. It is well known that fluid pressure drop calculations depend upon variables pertaining to fluid velocity or volume flowrate; properties of the fluid itself (such as specific gravity, compressibility, kinematic viscosity, etc.); and the physical properties of the conduit (diameter, friction factor, etc.). External to the system are considerations such as elevation changes.

While the inlet pressure of the fluid will affect some of these properties such as viscosity or specific gravity, the effect is somewhat minor. All other things remaining equal, doubling of inlet pressure will not double the resulting pressure drop. It is also well understood that the velocity of the fluid is the most important determinant of both pressure drop and heat transfer (again, stated clearly by Kaellis '017). Hence, it is not necessary to increase the pressure drop through a higher pressure heat

exchanger at all, in order to maintain a high level of heat transfer. Hence, one skilled in the art would not find that Barchas et al. '481 alone or in combination with Kaellis '017 would disclose the instant invention, and hence the rejection is improper and should be vacated. As claims 14 – 20 are dependent up on claim 13, the rejection is improper with regard to them as well.

CONCLUSION

In view of the above, Applicants maintain that Claims 13 to 20, and 22 are now in condition for allowance. Early notice to this effect is earnestly solicited. Should the Examiner believe a telephone call would expedite the prosecution of the present application, the Examiner is invited to call the undersigned attorney at the number listed below.

Applicants do not believe that any fee is due at this time. However, in the event that any additional fees are due, the Commissioner is authorized to debit deposit account number 01-1375 for the amount due. Also, the Commissioner is authorized to credit any overpayment with regard to the present response to deposit account number 01-1375.

Respectfully submitted,

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